

Practice: 380 - Windbreak/Shelterbelt Est.**Scenario: #1 - Shrubs, potted****Scenario Description:**

Use the shrub, conifer, and hardwood scenarios of this practice to design windbreak as needed. Usually, a multi-row windbreak of low growing shrubs (outside row), tall growing hardwoods (inside row), and conifers (middle row) can provide multiple benefits. For multiple rows, planting should be staggered in adjacent rows. Consider using evergreen conifers when planting around confined animal operations for odor control. Windbreaks in and around pastures provide shade to livestock. Windbreaks can be as wide as needed but common sizes can be as wide as 5 rows or as narrow as 1 row. Can be mix of shrub, hardwood, or conifer as well as a mix of species. Spacing of trees within the rows should be kept relatively wide to promote low branching and wide crown development (4 to 6 ft for shrubs and 10 to 12 ft for trees). A larger windbreak provides more opportunity for species diversity. An example would be mast trees and shrubs for food, and dense growing conifers, deciduous trees and shrubs for shelter and cover. Space trees from 10 to 15 feet apart and shrubs 3 to 13 feet apart depending on the species and its growth habits. The minimum spacing between rows for multiple row plantings is 12 feet, and the maximum spacing is 20 feet. Rows should be 4 ft wider than equipment used for maintenance.

This practice is typically applied to crop, pasture or confined animal operations. Resource Concerns to be addressed may include: Soil Erosion (wind); Excess/Insufficient Water (inefficient moisture management); Water Quality Degradation (excess nutrients in surface waters, excessive sediment in surface waters,); Degraded Plant Condition (undesirable plant productivity and health); Inadequate habitat for Fish and Wildlife (food, cover/shelter, continuity); Inefficient Energy Use (facilities, farming/ranching practices and field operations); Inadequate shelter for Livestock (cover/shelter); or Objectionable Odors (air quality).

Before Situation:

Agricultural field, livestock paddock, feedlot or farmstead needing protection from wind, additional wildlife food and cover, livestock shelter or management of objectionable odors.

After Situation:

Wind velocity suitably reduced to reduce soil erosion, or to manage objectionable odors. Additional livestock shelter, or wildlife food and cover is provided.

Scenario Feature Measure: length of windbreak row(s)

Scenario Unit: Each

Scenario Typical Size: 100

Scenario Cost: \$1,688.48

Scenario Cost/Unit: \$16.88

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Auger, Post driver attachment	934	Auger or post driver attachment to a tractor or skidsteer. Does not include power unit. Labor not included.	Hour	\$7.55	8	\$60.40
Tractor, agricultural, 60 HP	963	Agricultural tractor with horsepower range of 50 to 90. Equipment and power unit costs. Labor not included.	Hour	\$21.16	8	\$169.28
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$17.54	8	\$140.32
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	\$31.56	8	\$252.48
Materials						
Wire flags	1586	Small vinyl flags attached to wire stakes, typically, 36" in length, for marking tree rows	Each	\$0.09	100	\$9.00
Shrub, seedling or transplant, potted or B&B, 2-3 gal.	1527	Potted or balled and burlapped shrub, 2-3 gal. Includes materials and shipping only.	Each	\$8.57	100	\$857.00
Mobilization						
Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been i	Dollar	\$1.00	200	\$200.00

Practice: 380 - Windbreak/Shelterbelt Est.**Scenario: #2 - conifer trees, container****Scenario Description:**

Use the shrub, conifer, and hardwood scenarios of this practice to design windbreak as needed. Usually, a multi-row windbreak of low growing shrubs (outside row), tall growing hardwoods (inside row), and conifers (middle row) can provide multiple benefits. For multiple rows, planting should be staggered in adjacent rows. Consider using evergreen conifers when planting around confined animal operations for odor control. Windbreaks in and around pastures provide shade to livestock. Windbreaks can be as wide as needed but common sizes can be as wide as 5 rows or as narrow as 1 row. Can be mix of shrub, hardwood, or conifer as well as a mix of species. Spacing of trees within the rows should be kept relatively wide to promote low branching and wide crown development (4 to 6 ft for shrubs and 10 to 12 ft for trees). A larger windbreak provides more opportunity for species diversity. An example would be mast trees and shrubs for food, and dense growing conifers, deciduous trees and shrubs for shelter and cover. Space trees from 10 to 15 feet apart and shrubs 3 to 13 feet apart depending on the species and its growth habits. The minimum spacing between rows for multiple row plantings is 12 feet, and the maximum spacing is 20 feet. Rows should be 4 ft wider than equipment used for maintenance.

This practice is typically applied to crop, pasture or confined animal operations. Resource Concerns to be addressed may include: Soil Erosion (wind); Excess/Insufficient Water (inefficient moisture management); Water Quality Degradation (excess nutrients in surface waters, excessive sediment in surface waters,); Degraded Plant Condition (undesirable plant productivity and health); Inadequate habitat for Fish and Wildlife (food, cover/shelter, continuity); Inefficient Energy Use (facilities, farming/ranching practices and field operations); Inadequate shelter for Livestock (cover/shelter); or Objectionable Odors (air quality).

Before Situation:

Agricultural field, livestock paddock, feedlot or farmstead needing protection from wind, additional wildlife food and cover, livestock shelter or management of objectionable odors.

After Situation:

Wind velocity suitably reduced to reduce soil erosion, or to manage objectionable odors. Additional livestock shelter, or wildlife food and cover.

Scenario Feature Measure: length of windbreak row(s)

Scenario Unit: Each

Scenario Typical Size: 50

Scenario Cost: \$287.14

Scenario Cost/Unit: \$5.74

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Hand tools, tree planting	1590	Various hand tools for digging holes and planting trees such as augers, dibble bars, planting shovel, hoe-dad. Equipment only. Labor not included.	Hour	\$11.22	2	\$22.44
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$17.54	2	\$35.08
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	\$31.56	2	\$63.12
Materials						
Tree, conifer, seedling, containerized, 4 cu. in.	1516	Containerized conifer stock, 4 cubic inches (e.g., "4a" plug), 1.1" x 5.2". Includes materials and shipping only.	Each	\$0.24	50	\$12.00
Wire flags	1586	Small vinyl flags attached to wire stakes, typically, 36" in length, for marking tree rows	Each	\$0.09	50	\$4.50
Mobilization						
Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been i	Dollar	\$1.00	150	\$150.00

Practice: 380 - Windbreak/Shelterbelt Est.**Scenario: #3 - Hardwood trees, potted****Scenario Description:**

Use the shrub, conifer, and hardwood scenarios of this practice to design windbreak as needed. Usually, a multi-row windbreak of low growing shrubs (outside row), tall growing hardwoods (inside row), and conifers (middle row) can provide multiple benefits. For multiple rows, planting should be staggered in adjacent rows. Consider using evergreen conifers when planting around confined animal operations for odor control. Windbreaks in and around pastures provide shade to livestock. Windbreaks can be as wide as needed but common sizes can be as wide as 5 rows or as narrow as 1 row. Can be mix of shrub, hardwood, or conifer as well as a mix of species. Spacing of trees within the rows should be kept relatively wide to promote low branching and wide crown development (4 to 6 ft for shrubs and 10 to 12 ft for trees). A larger windbreak provides more opportunity for species diversity. An example would be mast trees and shrubs for food, and dense growing conifers, deciduous trees and shrubs for shelter and cover. Space trees from 10 to 15 feet apart and shrubs 3 to 13 feet apart depending on the species and its growth habits. The minimum spacing between rows for multiple row plantings is 12 feet, and the maximum spacing is 20 feet. Rows should be 4 ft wider than equipment used for maintenance.

This practice is typically applied to crop, pasture or confined animal operations. Resource Concerns to be addressed may include: Soil Erosion (wind); Excess/Insufficient Water (inefficient moisture management); Water Quality Degradation (excess nutrients in surface waters, excessive sediment in surface waters,); Degraded Plant Condition (undesirable plant productivity and health); Inadequate habitat for Fish and Wildlife (food, cover/shelter, continuity); Inefficient Energy Use (facilities, farming/ranching practices and field operations); Inadequate shelter for Livestock (cover/shelter); or Objectionable Odors (air quality).

Before Situation:

Agricultural field, livestock paddock, feedlot or farmstead needing protection from wind, additional wildlife food and cover, livestock shelter or management of objectionable odors.

After Situation:

Wind velocity suitably reduced to reduce soil erosion, or to manage objectionable odors. Additional livestock shelter or wildlife food and cover is created.

Scenario Feature Measure: length of windbreak row(s)

Scenario Unit: Each

Scenario Typical Size: 50

Scenario Cost: \$860.24

Scenario Cost/Unit: \$17.20

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Auger, Post driver attachment	934	Auger or post driver attachment to a tractor or skidsteer. Does not include power unit. Labor not included.	Hour	\$7.55	4	\$30.20
Tractor, agricultural, 60 HP	963	Agricultural tractor with horsepower range of 50 to 90. Equipment and power unit costs. Labor not included.	Hour	\$21.16	4	\$84.64
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$17.54	4	\$70.16
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	\$31.56	4	\$126.24
Materials						
Tree, hardwood, seedling or transplant, potted or B&B, 2-3 gal.	1532	Potted or balled and burlapped hardwood tree, 2-3 gal. Includes materials and shipping only.	Each	\$6.89	50	\$344.50
Wire flags	1586	Small vinyl flags attached to wire stakes, typically, 36" in length, for marking tree rows	Each	\$0.09	50	\$4.50

Mobilization

Mobilization

Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been i	Dollar	\$1.00	200	\$200.00
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